

FRENCH ROAD SYSTEM

Administration and Construction
of World's Best Highways.

RECORD OF ALL WORK KEPT

Building of Roads Supervised by the
Government as Carefully as a Rail-
road Constructs Tracks—Marked At-
tention Paid to Drainage.

Good roads among the best assets
of any community, and the American
state which first creates them in a
systematic way will derive benefit
which it will never fully appreciate.

The Los Angeles highway council
has recently addressed inquiries to
American Consul Skinner at Marseilles
asking him about the laws and con-
struction methods in France. Consul
Skinner investigated and has published a
most interesting explanation of the
subject from which the following ex-
tracts were made:

France has the finest roads in the
world, both in physical form and relation to the national geography. The
French nation has spent more than
\$400,000,000 on them to more than
\$200,000,000 spent by the local depart-
ments.

Down at the bottom of the French
road system is the little entrepreneur
or road foreman, who has charge of
one to three miles of road. He is to
the roads what the section boss is to a
transient organization. Up at the top
is the School of Roads and Bridges, a
great technical college in which every
meeting description and every detail
of road building is taught. Between
these two extremes the government
controls, inspects, regulates every-
thing. A record is kept of every mile
of road in the country, what it cost,
who built it and how the expenses for
maintenance and rebuilding, more
than in its history, is carefully record-
ed. France's highway system is even
indexed like the list of patrons of a
mail order house.

France does not have the best roads
because it has special skill in making them. An English engineer designed
the scheme. No more so because it
has especially large or unusual ex-
cellent supplies of materials. The same
materials can be found all over the
United States. French roads are per-
fect because the road laws are near
perfection, because the road business
is a profession and not a jingle; and
because the men who make themselves
proficient are certain of special recogni-
tion.

But about the physical construction
of a French road. To begin with
French experience proves that deep
solid foundations and fine surfaces are
not so important as something else
commonly overlooked, drainage. It is a
primary and vital principle of
French roadmaking that the roadway
must receive no more than its own
natural rainfall. Everything else must
be done to this.

A standard French national road is
forty-six feet wide. In the middle is
the road proper twenty feet wide.
Outside this, thirteen feet wide on
either side, gradually sloping away
from the surfaced road slightly. These
are used as footways and moist
hard mud banks enough to hold in place
the surfacing material of the road proper.
Finally outside all this mass
a ditch on each side if the contour
of the ground makes this necessary
for drainage.

They begin by digging out a "box"
in the earth the width of the roadway
proper twenty feet. This is carefully
concreed at the bottom so that the
hard surfacing materials shall be of
the same thickness throughout and
give a surface of exactly the right
curvature. This curvature is from one
fiftieth to one fiftieth of the width.
When the "box" has been carefully
prepared the bottom and sides are vigor-
ously "tamped" to assure that they
will be hard enough to hold the solid
material firmly. Then it is ready for
the crushed stone, etc., to be put in.

Every bit of crushed stone must pass
through a two and one-third inch
screen. Eight inches of this crushed
material is deposited in the box, and
then it is rolled with a six ton roller.
While the rolling is going on large
amounts of water are constantly sprin-
kled on the surface. At the same time
a mixture of sandy and argillaceous
materials equal in volume to 10 per
cent of the amount of crushed stone
used is sprinkled slowly on the surface
along with the water and very evenly
and the whole is rolled down until the
tire of a loaded wagon will make no
track. Then the road is finished save
for the requirement that it must stand
for fifteen days before being open-
ed to traffic. This is a description of
a crushed stone surface. Where other
materials must be used they are pro-
vided for in the French scheme—burn-
ed clay, gravel, etc. There is a plan
for every material and every region.

When the road is built the car-
miles tramp up and down it and keep it
in repair, fills cuts with broken
stone, clears the ditches, etc. Also
the construction is a German in char-

of a larger section, above him an en-
gineering superintendent, and so on
up to the inspector general of high-
ways and bridges, who is head of the
whole system for the country. Every
man in the list receives specific orders
from his next superior and is ranked
according to his execution of them.

They have no fixed tire laws in
France, but that happens because the
people use broad tires by instinct. They
have sense enough to know that good
wide tires make the roads better in-
stead of worse. Nobody else except
the French seem to have learned this.

UNIFORM STREET PLANTING.

It Gives Strength and Dignity to the
Effect.

The first necessity of rational street
planting is to have the same sort of
tree on each side for as great a
distance as possible, says the Los An-
geles Times. One never tires of the
same tree, no matter how extensive
the lines; there are added strength
and dignity with each successive mile.
Of course a highway with curves
and bends may be an exception, but
straight lines of planting should be of
one kind only. The community serves
but to intensify our appreciation and
enjoyment and the length and regular
uniformity become stately with
advancing years. The visitor noticing
the general effect for a time begins
to study habit, foliage, bark, flower
or seeds and unconsciously becomes
a student of nature, with the
effect that it never altogether leaves
him and he is born anew.

Next to a lack of uniformity one
chief fault in planting streets is over-
planting. A few years ago a man
of note was driven down Magnolia avenue, Riverside, Cal., in
those days the sides were nearly all
with immense eucalyptus. After the
drive, upon being asked what he thought
of the avenue, he remarked: "It is about as cheerful as driving
through a tunnel." Ever since the
thinning out process has been going
on until today you may catch fine
views of the distant mountains. Let
street plantings have been on a
more rational plan, though all of the
older streets in Riverside, as is the
case all over southern California, are
too thickly lined with trees. With
such planting all individuality and
beauty of outline are lost, and the effect
is little less monotonous than that of a
continuous wall of brick or stone.

Overplanting has been responsible
for a great majority of the objections
to uniformity of sorts, for if each side
of the street presents a solid mass of
foliage and you can see nothing beyond
a change of color and form, is certainly
pleasing. Street planting should
never shut out all glimpses of the
adjoining or distant landscape. Wherefore it is pertinent to remark
that all street tree planting in southern
California is overdone.

PAID TAXES WITH TREES.

How Poor Man of Missouri Town Made
it Beautiful.

The stranger in Mason, Mo., invariably
notes the large number of mag-
nificent shade trees that border the
streets of the town. The place has
come to be known as the City of Ma-
pies, and the inhabitants take pleasure
in telling how these fine trees were
acquired, says the Kansas City Star.

In 1872 John W. Beaumont, an ener-
getic real estate man, went broke and
could not pay his taxes, which amounted
to \$116. He offered the city com-
mittee in lieu of the cash 10,000 young
maple trees, from one to two inches
in diameter, all ready to set out. It
was that or nothing, so the council took
the trees. By public proclamation
the mayor fixed an arbor day, and ev-
erybody who would agree to set them
out and care for them was given from
six to ten trees. At that time the town
was almost bare of trees of every kind.
Almost in a day Mr. Beaumont's legal
bonds for taxes were in the hands of
the inhabitants, and they so faithfully
carried out the mayor's injunction that
today there is hardly a street in town
which is not beautifully shaded by
thick leaved trees, suggesting a town
in the tropics.

There's been many a public spirited
citizen who has contributed much of
his time and means to encourage the
development of thrift and beauty, but
on a hot summer's day the hard up pro-
moter who paid his taxes in trees is
remembered with the deepest grati-
tude.

Shipping Money Away.

It is reported on reliable authority
that no less than \$11,000,000 has been
sent out of this country to Europe in
the past year by immigrants who are
afraid to trust their savings to Amer-
ican banks. Americans are indignant
because these immigrants earn money
here and ship it out of the country.
But there are thousands of natives
living in the small cities and towns
and on the farms who make a prac-
tice of shipping money out of their
communities to the mail order stores
in the big cities, and many of these
persons are inclined to criticize the
immigrants mentioned. It always
looks better to spend your money in
the neighborhood where you earn it on
general principles.

LASTING ROAD WORK.

Missouri Highway Engineer Tells
Why It Saves Money.

MUD ROADS A HINDRANCE.

If Poorly Kept They Are Costly, Says
Curtis Hill—Urges the Building of
Macadam Highways—Deems Con-
crete Culverts the Best.

A Missouri correspondent who is
deeply interested in the question of
better highways in states of the mid-
west calls attention in the Farm
Progress to the value of permanent
road work. He states that he has
seen nothing lately which has im-
pressed him so much as a statement
recently made by Curtis Hill, state
highway engineer for Missouri, who
lays especial stress on the need of per-
manent improvement.

"In many prairie counties of Mis-
souri, Iowa and Kansas the farmer is



A DRAWSKETCH TO FARMERS.

practically "land bound" three months
during the winter," says Mr. Hill.
"Corn and grain, in fact, all kinds of
produce—go to fancy prices during the
muddy months, and the farmer who
has the stuff to sell frequently does
not get to market with it. Ohio and
Indiana farmers who have such roads
sell at top prices, while the Missourian
is kept from the market by bad roads.
When the Missouri farmer sees that
every dollar spent in macadam roads
is a dollar that will bear interest, the
road problem in Missouri will be a
long way on the way to solution."

"Dirt roads are more plentiful than
any other kind, and with proper care
they will answer every purpose of a
macadam road provided the traffic is
light. Scraping and dragging the dirt
roads will temporarily solve the prob-
lem of road construction in many prairie
counties. Getting the dirt roads in
shape will give us a hold on the state, and
the dirt roads will be followed
with gravel and later with macadam."

"There are some parts of the state
that take right hold of road improve-
ment. Others hang back, thinking that
they had best stick to their old dirt
roads because they have never had
anything else and doubt the practi-
cability of any scheme of road improve-
ment without tremendous expense."

"The thing that I want to see done
is the building of stone and concrete
culverts at points where small water
courses cross the roads. The old time
wooden culvert wears or rots out, is
replaced from two to ten times in a
decade and costs much more in the
long run than a stone or concrete cul-
vert."

"A missouri culvert will last forever
and when the road grades are changed
it is possible to make a twenty foot
cut right over a concrete culvert with-
out worrying about its ever wearing out.
The wooden culvert rots or breaks
under fill and has to be replaced by a
bigger one costing more money,
which in turn has to be repaired at
intervals."

"I want to see permanent work done
on our roads. There have been enough
mischiefs. Every dollar spent in per-
manent road improvement is a dollar
that will bear interest for every suc-
ceeding generation."

Civic Improvement.

Civic improvement in its broadest
sense contemplates a much wider range
of work than is usually considered by
workers for municipal betterment.
Charles Mulford Robinson, who is soon
to struggle with our shortcomings in
this direction, gives us the following
broad definition of the term, says the
Los Angeles Times:

"Civic improvement as properly in-
terpreted means something more than
making a city or town handsome or
pretty. Such beautification as it in-
volves has other purposes than merely
to give a pleasing effect. Our cities and
towns are not designed only to be
looked at. They are primarily places
to live in and to do business in, and
no civic improvement is worthy of the
name unless it be based on these con-
siderations. When based on them we
shall find it conferring more than a
superficial benefit. We shall find it
making the city or town a really better
place in which to live, blessing the
home life of all the citizens and if
not actually helping at least offering
no interference to business interests,
while perhaps by the attractive power
of its charm even bringing new busi-
ness into the city."

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